



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,884	02/11/2004	Jack J. Reilly	IR3709 NP	3393
31684	7590	08/20/2009	EXAMINER	
ARKEMA INC. PATENT DEPARTMENT - 26TH FLOOR 2000 MARKET STREET PHILADELPHIA, PA 19103-3222			FERGUSON, LAWRENCE D	
			ART UNIT	PAPER NUMBER
			1794	
			NOTIFICATION DATE	DELIVERY MODE
			08/20/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

carol.hill@arkema.com  
steven.boyd@arkema.com  
thomas.roland@arkema.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/776,884  
Filing Date: February 11, 2004  
Appellant(s): REILLY ET AL.

---

Thomas Roland  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed May 11, 2009, appealing from the Office action mailed November 10, 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: The grounds for rejection on Appeal are whether claims 1, 3-30, 32 and 35 are unpatentable under 35 U.S.C. 103 over Kito et al (U.S. 5,585,425) as evidenced by <http://hyperphysics.phy-astr.gsu.edu/hbase/tables/indrf.html>.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,585,425

KITO ET AL

12-1996

Nave, Carl "<http://hyperphysics.phy-astr.gsu.edu/hbase/tables/indrf.html>", 1999.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections – 35 USC § 103(a)***

Claims 1, 3-30, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kito et al. (U.S. 5,585,425) as evidenced by <http://hyperphysics.phy-astr.gsu.edu/hbase/tables/indrf.html>.

Kito discloses an article comprising two or more layers fused together (in optical contact) having a colored and transparent layer or colored and opaque layer on a transparent (light transmitting) substrate (column 12, line 46-67 and column 13, lines 14-22) where the colored layer, experiences color changes (column 2, lines 64-65), as in claim 8. Kito discloses the composition may be colored and transparent by the addition of dye or transparent pigment in column 12 lines 49-52, which gives the colored light transmissive layer a principle color. Kito discloses an undercoat layer and/or topcoat layer can be applied to the article (column 13, lines 40-61) where both are made of methacrylate material (column 13, lines 44-52 and column 14, lines 1-12) as in claims 5 and 12. Colorant can be added to the undercoating and top coating layer (column 14,

lines 13-17) and the thermochromatic color layer can be in a transparent state (column 12, lines 46-54) as in claims 6-7. Because Kito discloses an article comprising two or more layers fused together (in optical contact) having a colored and transparent layer on a transparent (light transmitting) substrate with a colored undercoating and top coating, it is expected for at least one edge of the light transmitting layer to appear different in its color when viewed along the edge, which would change with respect to the viewing angle and appear to be a mix of the transparent colored layer, transparent layer and colored top or undercoating layer(s) (show angular multichromatic characteristics).

Although Kito does not specifically disclose the thickness as in claims 1 and 35, thickness is optimizable. It would have been obvious to one of ordinary skill in the art to optimize the components because discovering the optimum or workable range involves only routine skill in the art. The thickness directly affects durability of the composite material and discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Aller* 105 USPQ 233 and see *In re Boesch*, 617 USPQ 215.

Concerning claims 1 and 3-4, because Kito discloses an article comprising two or more layers fused together (in optical contact) having a colored and transparent layer on a transparent (light transmitting) substrate with a colored undercoating and top coating, it is expected for at least one edge of the light transmitting layer to appear different in its color when viewed along the edge, which would change with respect to the viewing angle and appear to be a mix of the transparent colored layer, transparent layer and colored top or undercoating layer(s). Additionally, although claim 1 states the

observed color changes solely with respect to viewing angle, claim 1 does not exclude other ways for the color to change because they disclose an article which comprises a color change. The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003).

The article is a glass or plastic, with glass or plastic layers (column 21, lines 1-47) comprising acrylic resin and polymethyl methacrylate (column 5, lines 55-65 and column 13, lines 44-52) as in claim 9-11. Kito discloses the article has a three-dimensional form which is applicable to toys and decorative goods (column 25, lines 1-5) as in claims 28-30. In claim 29, the phrase, "suitable for a display, consumer product, or decorative support for an object" constitutes a 'capable of' limitation and that such a recitation that an element is 'capable of' performing a function is not a positive limitation but only requires the ability to so perform.

Concerning claim 13, because the thermochromatic color layer can be in a transparent state and it is adjacent to a transparent layer, there are at least two adjacent light transmitting layers in Kito's article.

Concerning claims 14-15 and 23, the transparent substrate is made of methacrylate material and the undercoating is made of methacrylate material (column 13, lines 14-20 and 44-48). Because the transparent substrate and undercoating are made of similar materials, it appears the indices of refraction of these layers are within about 0.5 or less of each other. The index of refraction of methacrylate materials are

conventionally greater than air, which has an index of refraction of about 1.0, as in claims 16-17. In claim 23, the phrase, "said two or more layers are coextruded" introduce a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims.

Concerning claim 18, the phrase, "having a depth measured from said edge" appears to introduce a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims. Example 1 of Kito shows a film with a varying thickness of the thermochromatic color layer, giving the structure a varying depth.

In claims 19 and 20, the phrases, "by cuts through said layers" and "produced by coextrusion or fusion bonding of said layers" introduces process limitations to the product claims. In claim 23, the phrase, "wherein said two or more layers are coextruded" also introduces a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is

unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given no patentable weight in product claims.

Concerning claim 21, because Kito teachings a topcoating and undercoating layer, the layers they coat appear to be interlayer material.

Concerning claims 22 and 24-26, a solvent (liquid) is used to apply the thermochromic layer to the substrate layer, which is a ketone, such as acetone, which has a refractive index of about 1.36, according to <http://hyperphysics.phy-astr.gsu.edu/hbase/tables/indrf.html>. The index of refraction of the solvent appears to be lower than that of the thermochromic layer and substrate. The solvent used in Kito is construed as being an interlayer before the structure is dried. Applicant claims an interlayer of liquid, but does not claim how long the liquid interlayer needs to be present in the structure.

Because the article of Kito is a layered article used to laminate or conceal substrates (column 1, lines 12-20), it is interpreted as a sheet, as in claim 27.

Concerning claim 32, it appears the article has a photochromic visual effect as it seems to turn dark when turned a certain way or exposed to light and returns to its normal transparency when the angle or light is removed.



**(10) Response to Argument**

Appellant maintains that claims 1, 3-30, 32 and 35 are not unpatentable over Kito et al. (U.S. 5,585,425) as evidenced by <http://hyperphysics.phy-astr.gsu.edu/hbase/tables/indrf.html>.

Appellant argues Kito fails to teach a thickness of at least one light transmitting layer is from 1 to 100mm. It would have been obvious to one of ordinary skill in the art to optimize the thickness of the layers of the article because discovering the optimum or workable range involves only routine skill in the art. The thickness directly affects durability of the composite material and discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Aller* 105 USPQ 233 and see *In re Boesch*, 617 USPQ 215. Additionally, the reference does not teach that the thickness cannot be higher than what is generally taught. Absent a showing of critical results, it would have been obvious to one of ordinary skill in the art to adjust the thickness to improve the strength and durability of the article. Note that the specification does not appear to contain disclosure of either the critical nature of the claimed thickness ranges or any unexpected results arising therefrom.

Appellant further argues that Kito changes opacity, where Appellant's claim a change of an observed color. Although Kito changes opacity due to temperature variation, even when no temperature change occurs, because Kito discloses an article comprising two or more layers fused together (in optical contact) having a colored and transparent layer on a light transmitting substrate, it would have been obvious to one of ordinary skill in the art for the observed color of the light transmitting layer, when viewed

along an edge, to appear different than its principle color solely due to the viewing angle. Appellant argues that Kito teaches an actual change in physical property while Appellant claims an observed change, yet there is no actual change in the properties of the article. Examiner maintains Although Kito teaches an actual change in a physical property due to temperature variation, even when no temperature change occurs, because Kito discloses an article comprising two or more layers fused together (in optical contact) having a colored and transparent layer on a light transmitting substrate, it would have been obvious to one of ordinary skill in the art for the observed color of the light transmitting layer, when viewed along an edge, to appear different than its principle color solely due to the viewing angle, with no actual change in the properties of the article.

Appellant argues the layer thickness of Kito cannot be optimized because the coating must be thin in order to uniformly apply the coating solution. Kito teaches the coating can be a maximum of 100 microns thick (0.1mm thick) (column 12, lines 20-21). The reference does not teach that the thickness cannot be higher than what is generally taught. Absent a showing of critical results, it would have been obvious to one of ordinary skill in the art to adjust the thickness higher than 100 $\mu$ m (0.1mm) to improve the strength and durability of the article. Furthermore, a thickness of 0.1mm is substantially close to a thicknesses of 0.2mm to 1mm and is considered to provide a prima facie case of obviousness. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Although Kito does not explicitly disclose a thickness for the light transmitting layer, it would have been obvious to one of ordinary skill in the art

to optimize the thickness of the light transmitting layer of Kito because discovering the optimum or workable range involves only routine skill in the art. Absent a showing of critical results, it would have been obvious to one of ordinary skill in the art to adjust the thickness to improve the strength and durability of the article. Note that the specification does not appear to contain disclosure of either the critical nature of the claimed thickness ranges or any unexpected results arising therefrom.

Appellant argues Kito does not teach the observed color of at least one exposed light transmitting layer, when viewed along an edge, appears different than its principle color solely due to viewing angle. Appellant argues Kito requires a thermochromatic effect which teaches away from a color change due solely to viewing angle. Although claim 1 states the observed color changes solely with respect to viewing angle, claim 1 does not exclude other ways for the color to change because they disclose an article which comprises a color change. The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003). Examiner maintains even when no temperature change occurs, because Kito discloses an article comprising two or more layers fused together (in optical contact) having a colored and transparent layer on a light transmitting substrate, it would have been obvious to one of ordinary skill in the art for the observed color of the light transmitting layer, when viewed along an edge, to appear different than its principle color solely due to the viewing angle.

Appellant agrees with the statement on page 8, lines 1-3 of the April 30, 2008 office action "Kito does not recognize Appellant's angular multi-chromatic characteristics." Although the office action of November 10, 2008, is the most recent office action mailed, the previous office action of April 30, 2008 Appellant is referring to on page 8, lines 1-3 was a rephrasing of Appellant's arguments from February 14, 2008, where the phrase Appellant is currently arguing was not recited in the claims of February 14, 2008. Appellant further argues the edge of Kito is too thin to view an edge effect. Appellant is only considering the coating layer of Kito which has a thickness of 0.1mm and is substantially close to a thicknesses of 0.2mm to 1mm and is considered to provide a prima facie case of obviousness. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). When the coating layer of Kito is combined with the additional layers of Kito, including the light transmitting substrate, it is expected that an edge effect can be observed. Appellant argues the claimed invention has an observed color change on the edge different from the primary colors solely due to viewing angle. Examiner maintains even when no temperature change occurs, because Kito discloses an article comprising two or more layers fused together (in optical contact) having a colored and transparent layer on a light transmitting substrate, it would have been obvious to one of ordinary skill in the art for the observed color of the light transmitting layer, when viewed along an edge, to appear different than its principle color solely due to the viewing angle.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Lawrence Ferguson  
/Lawrence D. Ferguson/  
Patent Examiner, Art Unit 1794

Conferees:

/David R. Sample/  
Supervisory Patent Examiner, Art Unit 1794

/KEITH D. HENDRICKS/  
Supervisory Patent Examiner, Art Unit 1794